Amendments to the Specification

The paragraph starting at page 2, line 13 and ending at page 3, line 11 has been amended as follows.

The inkjet recording apparatus includes a serial scan type (carriage scan type) inkjet recording apparatus and a multi-scan type inkjet recording apparatus. In the serial scan type inkjet recording apparatus, the carriage on which the recording head is mounted performs the recording while ~~reciprocated~~ reciprocating in a direction substantially perpendicular to the direction in which the nozzles are arrayed in the recording head. In the multi-scan type recording apparatus, the recording is performed by using the recording head having a width substantially equal to the width of the recording medium. The serial scan type inkjet recording apparatus has a configuration in which, after the multiplicity of nozzles included in the recording head are driven based on recording information by the carriage scan to perform the recording of one scan recording area, the recording medium is relatively conveyed by a predetermined ~~mount~~ amount in the direction substantially perpendicular to the carriage reciprocating direction. The given image is formed by alternately performing the recording scan and the conveyance of the recording medium. In the multi-scan type recording apparatus, the image is formed by performing the recording while the recording medium is conveyed in the direction substantially perpendicular to a nozzle array disposed in the recording head.

The paragraph starting at page 3, line 19 and ending at page 4, line 17 has been amended as follows.

In order to finely dispose the ink on the recording medium, it is contemplated ~~that~~ to increase a drive frequency of the recording head ~~is increased~~ to shorten an interval of the ink ejection, or it is thought ~~of that~~ to array the nozzles ~~are arrayed~~ in high density in the recording head. However, when the drive frequency of the recording head is excessively increased, after the ink droplet is ejected from the recording head, the next ink droplet cannot be ejected because the ink supply ~~does not~~ cannot catch up ~~with~~. Therefore, when it is desirable that the ink is disposed on the recording medium in a finer manner than the drive frequency determined by the configuration of the recording head, it is realized by the technology that the recording scan is performed at the ejectable drive frequency determined by the configuration of the recording head and the plural-time recording scans of the recording head are performed ~~to~~ over the same recording area. In this case, it is necessary that the previous recording scan differs from the subsequent recording scan in ejection timing of the ink droplet from the recording head so that impact positions of the ink droplets are different from each other. However, while the ink can be finely disposed on the recording medium by performing the plural-time recording scans ~~to~~ over the same recording area, throughput is decreased.

The paragraph starting at page 8, line 20 and ending at line 24 has been amended as follows.

In view of the foregoing, ~~it is an object of~~ the present invention ~~to~~ can improve the decrease in image quality when the recording is performed ~~to~~ on the predetermined recording area in the inkjet recording apparatus which can eject ~~the~~ ink droplets having ~~the~~ different sizes.

The paragraph starting at page 8, line 25 and ending at line 27 has been amended as follows.

~~Another object of the~~ The invention ~~is to~~ can also decrease the generation of ~~the~~ mist when ~~the~~ recording is performed ~~to~~ on the predetermined recording area.

The paragraph starting at page 9, line 13 and ending at line 25 has been amended as follows.

A recording apparatus of the invention for performing recording ~~to~~ on a recording medium based on image data by using a recording head which can eject ink droplets having different volumes, the recording apparatus comprising deciding means for deciding an area where the recording is performed in a recording area by the recording head, setting means for setting each of ratios of recordings by the ink droplets having ~~the~~ different volumes in accordance with a decision result of the deciding means, and recording means for

performing the recordings by the ink droplets having ~~the~~ different volumes with the ratios set by the setting means.

The paragraph starting at page 10, line 27 and ending at page 11, line 7 has been amended as follows.

According to the invention, in the inkjet recording apparatus which can eject ~~the~~ ink droplets having ~~the~~ different sizes, since the recording is properly performed with the ink droplet having ~~the~~ a predetermined size in accordance with the recording area including the recording medium, the quality of the recording image can be improved. Further, the generation of the mist can be reduced.

The paragraph starting at page 15, line 6 and ending at line 21 has been amended as follows.

As an example of the recording head to which the embodiment can be applied, the recording head in which a plurality of nozzles (recording element, ejecting port) ~~being~~ capable of independently ejecting ~~the~~ ink ~~droplet~~ droplets by utilizing heat or vibration is arrayed can be cited. It is also possible to provide a plurality of nozzle arrays in which the nozzles are arrayed for each color of the ink. It is also possible to use the recording head in which one nozzle can eject the ink droplets having ~~the~~ different sizes. It is also possible to use the recording head in which at least two types of nozzles are disposed so that one of the

types of nozzles can eject the ink ~~droplet~~ droplets having the predetermined size and the other type of nozzles can eject the ink ~~droplet~~ droplets having the size different from the predetermined size.

The paragraph starting at page 17, line 14 and ending at page 19, line 6 has been amended as follows.

The recording area including a recording medium 13 is divided into the areas as shown in Fig. 1. The reference numeral 203 represents an area outside recording medium (areas outside paper). Particularly, the downstream side in the conveying direction is referred to as an outside-paper-front-end area because the downstream side is located close to the front end portion of the recording medium, and the upstream side in the conveying direction is referred to as an outside-paper-rear-end area because the upstream side is located close to the rear end portion of the recording medium. The reference numeral 202 represents a recording area of an end portion in the conveying direction of the recording medium, and the reference numeral 202 also represents the area which is not supported by both the conveying roller and the paper discharge roller in conveying the recording medium. The front end portion of the recording medium is referred to as a front-end recording area 202 and the rear end portion of the recording medium is referred to as a rear-end recording area 202. The reference numeral 204 represents an area where the conveyance only with the conveying roller is transferred to the conveyance with both the

conveying roller and the paper discharge roller at the front end portion of the recording medium, and the reference numeral 204 also represents the area where the conveyance with both the conveying roller and the paper discharge roller is transferred to the conveyance only with the conveying roller at the rear end portion of the recording medium. The area 204 located on the front end side of the recording medium is the area which is spread from a paper discharge roller entry position where the recording medium conveyed only with the conveying roller is started to be supported by both the conveying roller and the paper discharge roller to the position where the recording medium is conveyed by a predetermined distance. The area 204 located on the rear end side of the recording medium is the area which is spread from the position where the recording medium is supported by both the conveying roller and the paper discharge roller to a conveying roller separation position where the rear end portion of the recording medium is separated from the conveying roller when the recording medium is conveyed by a predetermined distance. Further, the reference numeral 205 is a normal recording area between the areas 204.

The paragraph starting at page 28, line 17 and ending at line 26 has been amended as follows.

The area shown by a chain double-dashed line outside the recording medium 13 is the recording area. As shown in Fig. 7, when the recording is performed so that the margin of the recording medium is eliminated, the recording is performed to the range which is

wider than the recording medium by the predetermined amount (~~α1~~ a1 to ~~α4~~ a4 are referred to as the amount of extending-off-recording medium). Usually the amounts of extending-off-recording medium ~~α1~~ a1 to ~~α4~~ a4 range from about 2 mm to about 5 mm.

The paragraph starting at page 28, line 27 and ending at page 30, line 5 has been amended as follows.

The recording medium 13 is fed to the nip formed between the conveying roller 5 and the auxiliary roller 11 by the paper feed unit 10, and the recording medium 13 is conveyed to the position providing a predetermined amount of extending-off-recording medium a3 by the conveying roller 5. Under this condition, the recording head 7 is driven to eject the ink droplet toward the recording medium 13, the ink droplets ejected to the portions extending off the recording medium 13 ~~reaches~~ reach onto the ink absorber 14 to be absorbed. Then, similarly to the normal recording, the recording is performed by repeating the conveying operation of the recording medium by the predetermined amount and the recording scan by the recording head. In each recording scan, ~~the~~ both end portions of the recording area are recorded with the widths being wider than the recording medium 13 by a1 and a2. Similarly to the ink droplets ejected to the portion extending off the recording medium 13, the ink droplets ejected within the ranges extending off ~~the~~ both end portions of the recording medium 13 are absorbed into the ink absorber 14. After the rear end of the recording medium 13 reaches the nozzle line of the recording head 7, the

printing is continued to the range of the amount of extending-off-recording medium a4. Similarly to the recording of the front end portion, the ink droplets ejected to the portion extending off the recording medium 13 are also absorbed into the ink absorber 14. When the recording operation to the amount of extending-off-recording medium is finished, the recording medium 13 is discharged outside the printer, and the frameless recording in which the margin of the recording medium is eliminated is completed.

The paragraph starting at page 31, line 15 and ending at page 32, line 6 has been amended as follows.

When the recording is performed in order to eliminate the margin of the recording medium, if it is decided that the recording is to be performed to an area outside the recording medium, that is, the outside-paper-end recording area 302, the recording head is controlled so as to perform the recording only with the larger ink droplet in order to suppress the generation of the mist. When the recording is performed with the smaller ink droplet which is easy to evaporate, because the distance between the nozzle surface of the recording head and the ink absorber is larger than the distance between the nozzle surface and the recording medium, there is a fear that the smaller ink droplet does not reach ~~to~~ the ink absorber but ~~become the~~ becomes mist to diffuse in the recording apparatus. Therefore, the recording is performed only with the larger ink droplet when the recording is

performed in the recording area (outside-paper-end recording area 302) outside the recording medium.

The paragraph starting at page 32, line 7 and ending at line 16 has been amended as follows.

When it is decided that the recording is to be performed to the inside-paper-end recording area 304 which is of the periphery of the recording medium, the recording is performed by mixing the larger ink droplet with the smaller ink droplet. In the embodiment, the ratio ~~of~~ between the recording by the larger ink droplet and the recording by the smaller ink droplet is gradually changed in accordance with the position within the inside-paper-end recording area 304. This allows the image quality to be improved.

The paragraph starting at page 32, line 17 and ending at page 33, line 11 has been amended as follows.

In the normal recording area 305, the recording is performed only with the smaller ink droplet so that the image data can be recorded in high quality. In performing the recording scan in the normal recording area 305, ~~the~~ both end portions of each recording scan also include the inside-paper-end recording area 304, the outside-paper-end recording area 302, and the outside-paper area 303, so that the recording head is controlled so as to eject the ink droplet set in accordance with each area. In the inside-paper-end recording

area 304 between the normal recording area 305 where the recording is performed only with the smaller ink droplet which is ~~easy~~ more likely to generate the mist and the outside-paper-end recording area 302 where the recording is performed only with the larger ink droplet which is ~~difficult~~ less likely to generate the mist, when the dot arrangement pattern of the normal recording area 305 is changed to the dot arrangement pattern of the outside-paper-end recording area 302, the transition can be performed while the difference in image quality becomes inconspicuous by performing ~~the~~ recording with the ink droplets having ~~the~~ different sizes.

The paragraph starting at page 33, line 12 and ending at page 34, line 9 has been amended as follows.

As described above, in the recording apparatus which can eject the ink droplets having ~~the~~ different sizes, the recording is performed by selecting the size of the ink droplet used for the recording in accordance with each area of the recording area including the recording medium, which allows the generation of the mist to be decreased in the vicinity of the end portions of the recording medium while the recording image is maintained at high quality. The recording is performed with the smaller ink droplet in order to give a high priority to the image quality, in the normal recording area 305, such as the present embodiment, which occupies the dominant portion of the recording medium. On the other hand, in the vicinity of the end portions of the recording medium in which the

image quality is not so important, the recording is performed with the larger ink droplet while the ratio of the recording performed with the smaller ink droplet is decreased, which allows the generation of the mist to be decreased although the image quality is slightly decreased in the vicinity of the end portions of the recording medium. The inside of the recording apparatus can be prevented from becoming soiled by the ink, and the transfer of the soil from the recording apparatus to the recording medium can be reduced.

The paragraph starting at page 40, line 13 and ending at page 41, line 1 has been amended as follows.

In adopting process black in which the pixel of black is expressed by yellow ink, magenta ink, and cyan ink, because each one pixel of the yellow ink, the magenta ink, and the cyan ink is ejected to the one ~~pixel~~ black pixel, the amount of ink ~~droplet~~ droplets ejected to one pixel is increased, which leads to the increase in generation of the mist. Therefore, when the black pixel is expressed by adopting ~~the~~ process black in the area near the end portion of the recording medium, it is preferable that the appearance probability of the black pixel is set to the value lower than that of the appearance probability of other color ~~pixel~~ pixels. In the recording apparatus having ~~the~~ ink such as photoblack ink which can replace the black ink, it is preferable that the image is formed ~~with~~ not with ~~the~~ process black but with the photoblack ink.